EFFECT OF COOPERATIVE-GAMIFIED LEARNING ON STUDENTS' CREATIVE BEHAVIOUR, MENTAL IMAGERY AND ACADEMIC ANXIETY AT UPPER PRIMARY LEVEL

Synopsis

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1.0.0 INTRODUCTION

The world in which we live is changing quickly and the field of education is experiencing these changes over the years. There was a time when our education system has undergone various drastic changes, now demands multi-dimensional education engagement. The earliest educational process involved learning within the walls, where learners learn in the classroom with traditional chalk and talk method. The traditional learning method is complete teacher-centric method, where teacher gives more importance to content rather than focusing on practical based education. When the learning is limited to spoon feeding then it would create problems for learners i.e. students don't acquire knowledge more than memory level. At memory level learners only memorize the fact but not understand it, which can emerge as a problem in examination, due to this some students face anxiety.

NEP (2020) recommended that Pedagogy must evolve to make education more experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centered, discussion-based, flexible, and, of course, enjoyable. The curriculum must include basic arts, crafts, humanities, games, sports and fitness, languages, literature, culture, and values, in addition to science and mathematics, to develop all aspects and capabilities of learners and make education more well-rounded, useful, and fulfilling to the learner. Education must build character, enable learners to be ethical, rational, compassionate, and caring, while at the same time prepare them for gainful, fulfilling employment.

NCF (2005) also recommended that teachers should reduce the burden or stress on students with mentally as well as physically also. Now a days, Anxiety become a common problem for most of the students. They feel stress towards their learning. At some level anxiety works like a positive reinforcement but if it goes beyond the level then it would work like a negative reinforcement and learners show passive attitude towards studies, lack of confidence and concentration, reduce memory span and poor reasoning abilities **(Md Aman Azeem, 2018 as cited in Aronen et al., 2005).**

The traditional method of teaching has many drawbacks like it is teacher- centered, teacher as instructor , content based learning , restricted learning environment etc. These all are drawbacks can be overcome by using various methods which has been used in present scenario i.e. graphic organizer, art integration learning, info graphics , learning by doing, gamified learning, cartoon learning, computer based learning etc. Among all these methods researcher opts gamified learning method with

cooperative learning. Cooperative-gamified learning provides learners a game based environment in which students learn without any burden or stress and also get creative ideas which help to solve out problems fruitfully.

It helps to acquire knowledge which remain for a longer period in student's mind. This learning is also helpful for making the building blocks in student's mind, which is recommended by Piaget in his theory that schemas are the basic building blocks of such cognitive models, and enable us to form a mental representation of the world**, in the view of Piaget 1952**. These building blocks create in learner's mind with the help of mental imagery. Most cognitive processes, for example perception, memory and imagery, involve mental representations or mental images, research concluded by **Pellerone et al., (2017), Guarnera et al.,(2018**)**.** So, researcher will try to overcome all these problems by employing Gamified learning in present research.

An innovatory learning approach extracted from the use of computer games that possess educational value or distinct kinds of software applications that use games for learning and education purposes such as learning support, teaching enhancement, assessment and evaluation of learners. **(Emanuel Soare, 2019 as cited in Tang et al., 2009).** Gamified learning is also known as Gamification or game-based learning. Gamified learning (or GBL**)** refers, a practice that relates to the use of games to enhance the learning experience. The term 'Gamification' was coined back in **2002 by Nick pelling,** a British-born computer programmer and inventor. The term gamified learning has been popularized after **2010.** In this case**,** the game becomes part of the learning process, and it is aimed at teaching a discrete skill or specific learning outcome while giving learners an engaging experience. Gamified learning is characterized by fantasy elements and it uses competitive exercises in order to motivate students to learn better. Gamified learning draws them into virtual environments that look and feel familiar and safe**,** environments where it is possible to choose actions, make mistakes and experience the consequences in a risk-free setting.

Gamified is a new discipline, having only seen significant and valued in literature since 2011 **(Hamari, Koivisto & Sarsa, 2014)**. Gamified learning increases in comfort in the use of technology combined with educators' continual search for motivational tools, excitement around the concept has grown **(Dichev & Dicheva, 2017)**. Learning allows students to engage with educational materials in a

playful and dynamic way. Gamified learning is not just creating games for students to play, it is designing learning activities that can incrementally introduce concepts, and guide users towards an end goal. Traditional games can incorporate competition, points, incentives, and feedback loops. These concepts have become increasingly popular in school education as a way to engage students in learning.

At a simple level, gamified learning can be comprehended as a learning which is facilitated by the use of a game. This can be at any academic level from preschool through to lifelong learning, from simple memorization and recall to high level learning outcomes such as evaluation or creativity. The game will be used for intrinsic or supplemental, played face-to-face with physical objects or online, with a computer. Games will establish goals, interaction, feedback, problem solving, competition, narrative, and fun learning environments, elements that can expand learner's engagement and sustain motivation.

Games play an important role to enhance performance of learners. It is one of the method among many that teachers may leave a effect on millennial students' mindset and the unique power of games to sustain interest and build commitment. It is clear that gamified learning offers an exciting opportunity to promote engagement and learning in school education. It is also useful to increase access to the technology that allows us to create and access games, as well as the relatively recent popularity of gamification in our everyday lives, have enabled us to experiment with these technologies and applications in interesting and innovative ways.

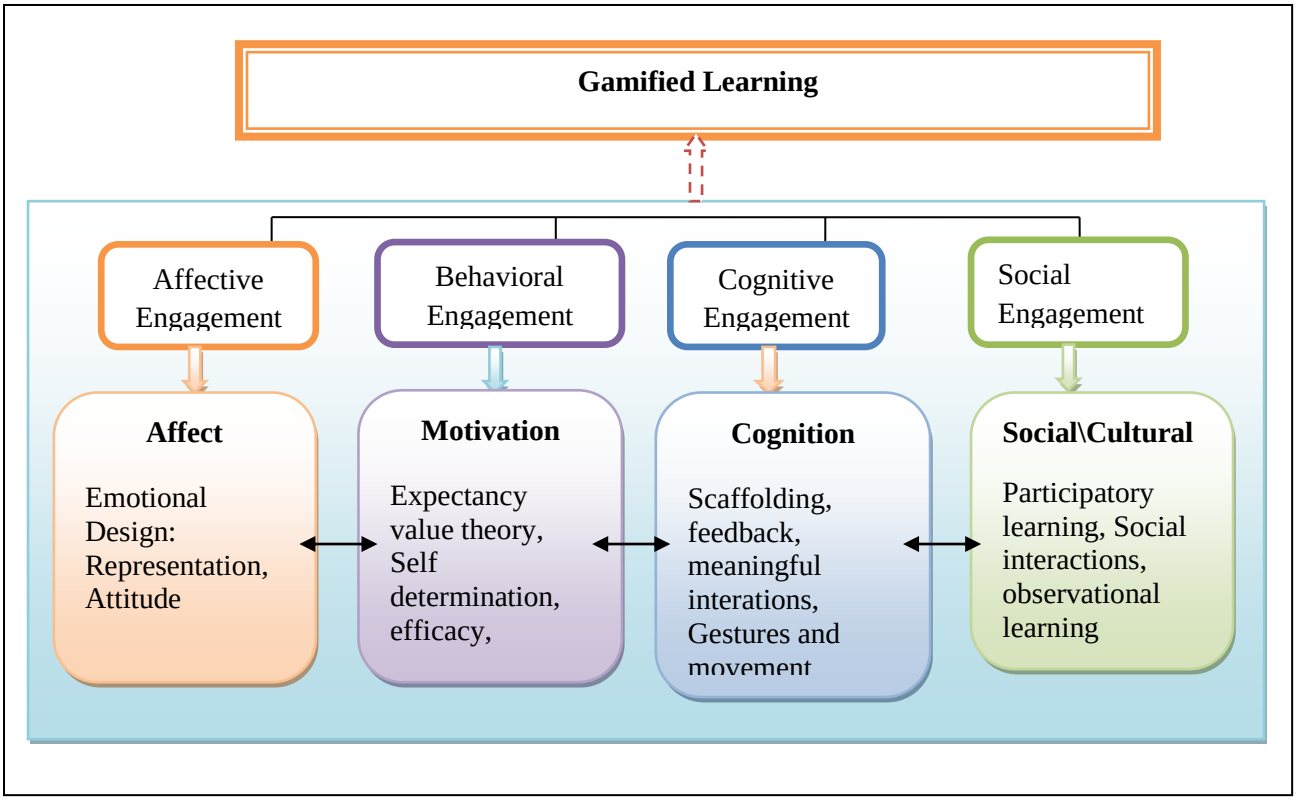

Fig.1 Foundation of Gamified learning

Gamified learning has an important application in the educational world. Sometimes, it finds grueling for students to motivate themselves, just as it is hard for educators to motivate students. So there is the reason in which gamified learning has been come in the field of education. Gamified learning helps the eagerness of a student to study and learn in a more enjoyable and interactive way. **According to Jenny chang, (2020) in his report of Gamification in education statistics**, **67%** of students reported that a gamified course was more motivating than their traditional learning. There is a common problem that students are less interested in learning. Many of students are not self-motivated enough to study just for the satisfaction of gaining knowledge and a good grade.

Gamified learning suggests traditional means of motivation. It enhances engagement by creating an interactive and fun experience. It can give students personal ownership of their learning, it gives freedom to try and fail until they succeed without major consequence, the breakdown of tasks and learning into manageable "portions," and it also makes learning visible. Gamified learning offers pacing, which is important when learning, allowing students to process information in a comfortable way. Gamified learning has become a more influential means of learning. When compared to

traditional methods Gamified learning increases up to **20%** of a student's self-confidence. It increases the retention of learned knowledge by **90%,** and it increases the number of accomplished tasks by **300%.** Gamified learning also improves conceptual knowledge by **11%** and practical knowledge by **20%.** Gamified learning helps to improve the interest and focus of students in learning. It helps to make learning enjoyable and dynamic. It also allows that students can learn at their own pace.

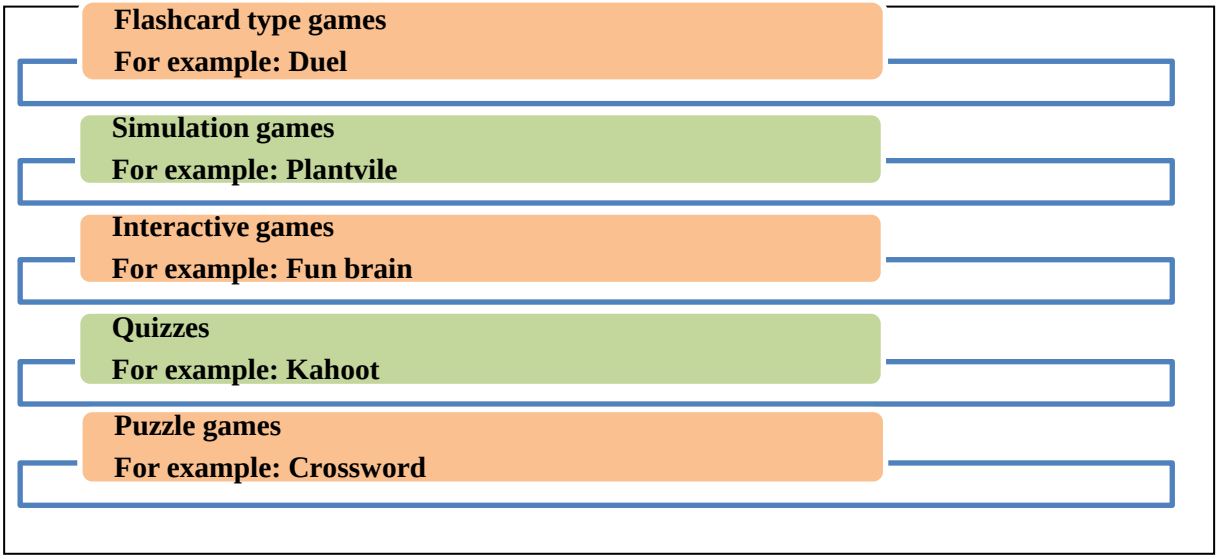

Fig.2 Main types of approaches of gamified learning

We all know that Gamified learning provides game based environment to students and also give opportunities to learn at their own rate. As same time we also know that when students learn in a small group they learn well with cooperation of one another. Thus the researcher keeping the idea in mind, researcher merges cooperative learning with our new innovative method gamified learning to seek the merged impulse efficacy of the pedagogy on students of upper primary, so it provides researcher a new discipline for study that is cooperative-Gamified learning with different variables i.e. Creative Behaviour, Mental Imagery and Academic Anxiety.

Cooperative Learning (Beth Lewis 2019): Cooperative learning is a teaching method. It arranges and mixes students of different level of ability and learning into groups. Also, it focuses on group success rather than individual success. Cooperative learning is the process of breaking a classroom of students into a small groups so they can discover a new concept together and help each other learn. Cooperative learning is based on group work, but it's also so much more than that. Cooperative learning is an activity which helps students to work in groups. Also, it enables them to learn and teach

group members. Also, the success of each member depends on the group's success. Cooperative learning is an instructional strategy that enables small groups of students to work together on a common assignment. The parameters often vary, as students can work collaboratively on a variety of problems, ranging from simple math problems to large assignments such as proposing environmental solutions on a national level. Students are sometimes individually responsible for their part or role in the assignment, and sometimes they are held accountable as an entire group. **In the views of Beth Lewis (2019)** Cooperative learning has received a lot of attention and praise especially since the 1990s when Johnson and Johnson outlined the five basic elements that allowed successful small-group learning, which are given below-:

- **Positive interdependence**: Students feel responsible for their own and the group's effort.
- **Face-to-face interaction**: Students encourage and support one another; the environment encourages discussion and eye contact.
- **Individual and group accountability**: Each student is responsible for doing their part; the group is accountable for meeting its goal.
- **Social Skills**: Group members gain direct instruction in the interpersonal, social, and collaborative skills needed to work with others.
- **Group processing**: Group members analyze their own and the group's ability to work together.

In today's century, there is a need of Cooperative-Gamified learning, which is an effective method to make students work towards a goal, allowing them to learn through experimentation, practicing behaviors and thought processes that can be then easily transferred from the simulated environment to real life. Cooperative learning is most suitable for healthy and overall developments of students. It suits to among various kinds of learning environment.

There are some points which are clearly defines that why do we need cooperative-gamified learning.

- Competition
- Engagement
- Immediate rewards
- Hand-Eye Coordination
- Beneficial Specifically For Children with Attention Disorders

- Increases a Child's Memory Capacity
- Computer & Simulation Fluency
- Better understanding of concepts
- Improve performance
- To make learning effective
- To remove monotonous learning from the classroom

Gamified method integrated with cooperative learning introduces a new method in the field of teaching-learning process. It will prove productive for upper primary level of students to create interest in learning and get some break of monotonous classroom. It will develop creative behaviour and abilities in students and it also help to reduce the stress of learning. Hence, researcher finds, individually they have proved and evident with the bunch of researches in the field of learning, but with the amalgamation of cooperative-gamified learning is yet to be explored.

CREATIVE BEHAVIOUR

Creativity is a very remarkable and noticeable term that seek interest of a large amount of people in all spheres. This term get more acknowledged in present scenario. It is a very important concept and is of great significance in educational acheivement, vocational areas, problem solving in daily life and many other areas of life. Creativity is the ability to transcend traditional ways of thinking or acting, and to develop new and original ideas, methods or objects. Whereas when a person generates some new thoughts or idea to solve out their issues or problem effectively and when such type of attitude reflects on its' behaviour is called as creative behaviour.

Creative behaviour is the way of generating and indentifying ideas, thoughts or possibilities that effectively find solution of the problems or help to communicate with others. It is the tendency to come up with fresh ideas and gives a new ways of looking at a situation. Creative behaviour is the term that is derived from Torrance's definition: gaps of perception, improper and missing component and formulation of new hypotheses, reaching certain results, hypotheses testing and linking the results with modifications and re-testing these hypotheses and then circulated.

Creative behaviour has been seen as the creative act, or a set of acts, which is made explicit through behaviour. It is not submissive, it is action, which leads a creative output or a solution to a challenge.

Creative behaviour is not confined solely to the domain of cognition and thoughts but rather it is action that yields output that is deemed original and useful **(Cabra, 2011).**

The creative behaviour is the ability of a person to meaningfully and creatively use a set of concept and thoughts in order to develop work in a particular field to promote of the highest level **(Dr. Rina Abdallah Naser, 2016 as cited in Noruzy, et al., 2013).** Creative behaviour of the individual is the style from which students can learn and train intensively on the methods of scientific thinking and can adopt to those around him and emerging circumstances of society, dealing creatively with issues of life **(Harrison, 2013).**

Guilford Substantiate that creativity is an open thinking specified by its amazing and unique outcome, the diversity of answers has been given, or significantly mental activity has directed by strong desire in search for solutions that were not previously identified, these solutions are specified by inclusiveness and complex. Creativity includes emotional and moral elements which constitute a different case of mind **(quoted in Jerwan, 2012, p.72).**

Creative behaviour is an acts of individual and unique acts which is practiced in the workplace including the discovery of opportunities, new thoughts and ideas that scientifically proved, and efforts done to be applied at any organizational level **(Alqaryouti, 2000)**. An individual's ability to produce, marked by more intellectual flexibility, fluency and originality **(Alzoubi, 2013)**

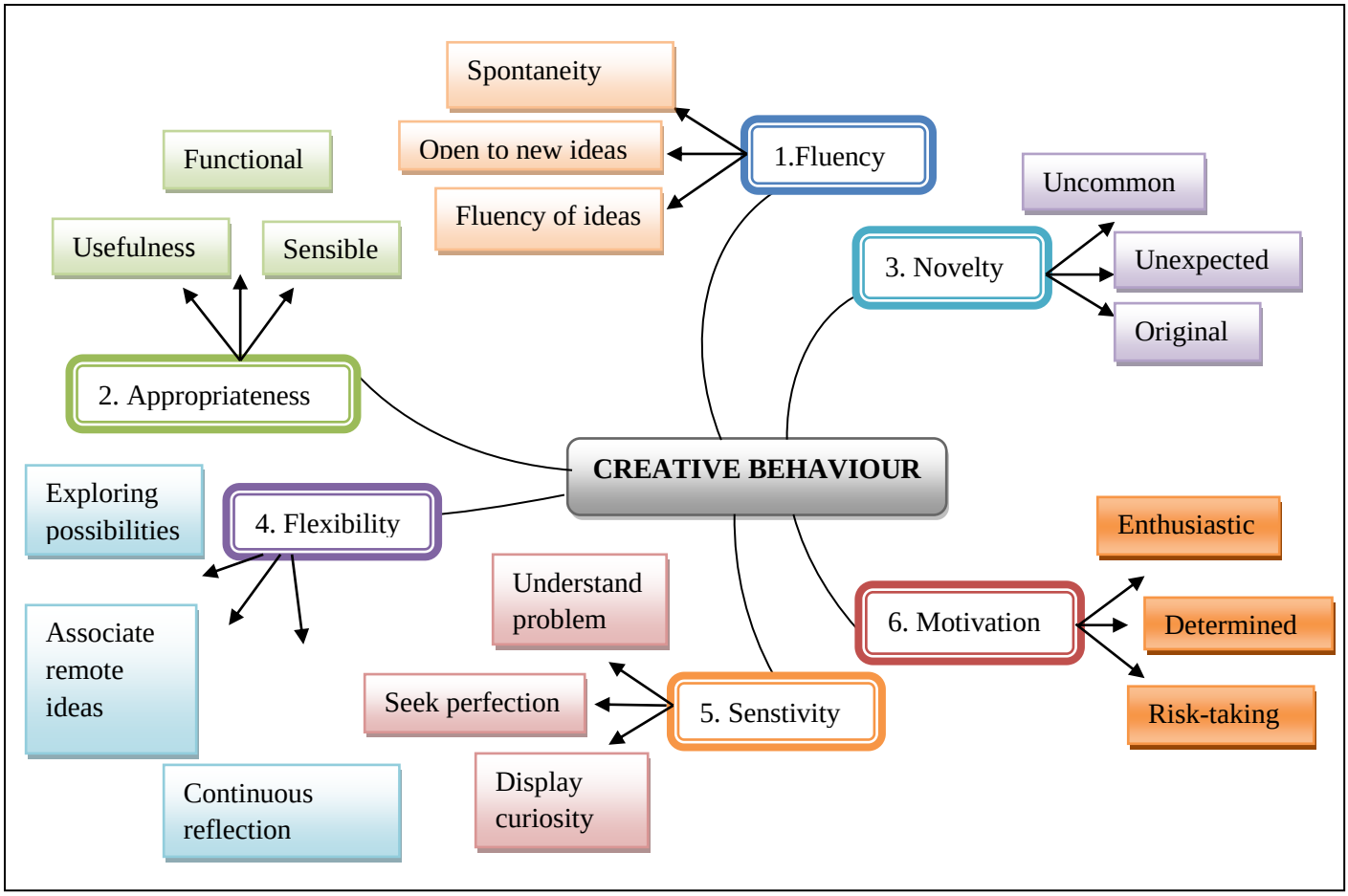

Fig 3 Elements of Creative Behaviour

MENTAL IMAGERY

In interpersonal communication process, mental imagery plays a vital and influential role. In which both individuals i.e. provider and an older adult interact and creating mental images–images that can either support or may create obstacles in the communication process **(Timothy A. storlie, 2015 as cited in Achterberg, 1985).** Although the imagery generated during these interactions usually remains outside of conscious awareness, it can still influence outcomes. Mental imagery is broadly construed as a cognitive simulation process by which researcher can represent perceptual information in our mind in the absence of appropriate sensory input **(Tadhg E. Maclntyre et al., as cited in Munzert et al., 2009).** Now a days, Mental imagery has become well-informed concept of most people's everyday experience. A few people may insist that they rarely, or even never, consciously experience imagery **(Galton, 1880)** but for the vast majority of us, it is a familiar and common place feature of our mental lives. The English language supplies quite a range of idiomatic ways of referring to visual mental

imagery: visualizing, seeing in the mind's eye, having a picture in one's head, picturing, having/seeing a mental image/picture, and so on. There seem to be fewer ways to talk about imagery in other sensory modes, but there is little doubt that it occurs, and the experiencing of imagery in any sensory mode is often referred to as 'imagining' (the appearance, feel, smell, sound, or flavor of something).

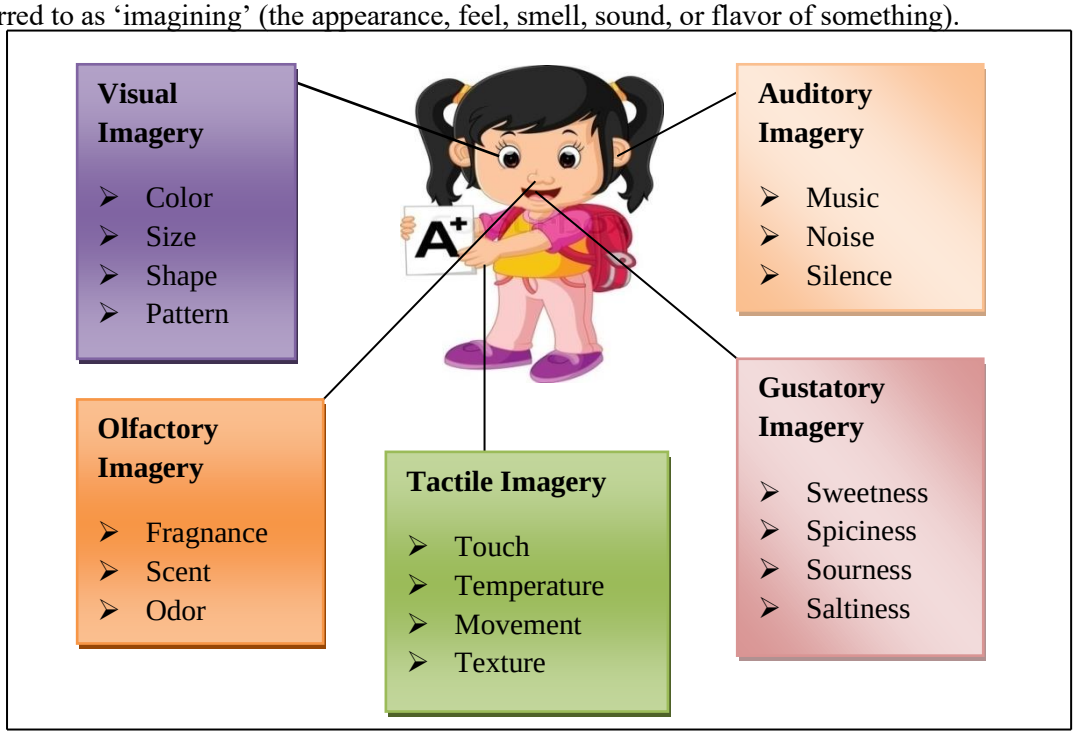

Fig.4 Types of imagery

ACADEMIC ANXIETY

Anxiety is a common condition noticed in people of all age groups. It may be caused by a physical condition, mental condition and effects of drugs or due to a combination of these. Anxiety is defined as a painful or apprehensive uneasiness of mind usually over an impending or anticipated ill **(Merriam-Webster, 2012).** There are various external factors that play an important role in anxiety. It may includes stress from school, stress in a personal relationship, stress at work, financial stress, stress that result from an emotional trauma such as the loss of a loved one, victimization by crime, a natural disaster, sexual abuse or physical abuse, side effects of medication. Stress from a serious illness, intoxication with an illicit drug like a cocaine, noticing symptoms of a severe medical illness and lack of oxygen. Academic anxiety may become detrimental, obstacle in the academic performance over the period of time. As the academic performance of the student suffers, the levels of anxiety related to certain academic chore also increases **(Md Aman Azeem, 2018 as cited in Huberty, 2009).**Though

an acceptable level of academic anxiety is actually a good thing as it keeps the student motivated to accomplish the academic tasks given to them **(Md Aman Azeem, 2018 as cited in Neelam, 2013).**

Rehman (2016) carried out a study to find out the causes of academic anxiety among higher education students and its preventive measures. Findings of the study clearly revealed that there are various potential threats such as personal, familial, institutional, social and political that provokes the anxiety among students and clinical and non-clinical measures are available to deal with the anxiety. There is a direct need to spread awareness among the students, parents and teachers.

Ferrer, Martínez and Raquel (2020) Gamification in Higher Education: Impact on Student Motivation and the Acquisition of Social and Civic Key Competencies. This study showed that the gamified learning is creative and effective tool to promote motivation, engagement and meaningful learning. The result showed that integration of this game-based student response system into the teaching process improved students' perception of certain concepts in social science teaching, increased their active participation in the lesson, and motivated them towards learning in a more interactive and stimulating environment.

Therefore, few questions have been aroused in the mind of researcher, for the pacification of which, the researcher has taken the research venture. Gamification will be explored to a whole new level with attractive digital participation platforms to increase motivation and enhance students' learning experience in higher education contexts. It proves helpful to give researcher a field of study to see how far the cooperative-gamified learning proves effective to know the impact on student's creative behaviour, mental imagery and academic anxiety. It may also lead to be effective to give break a system of monotonous classroom in teaching learning process and emerges as a new method of learning.

1.2.0 EMERGENCE AND JUSTIFICATION OF THE PROBLEM

If we critically evaluate the stages of school education system, we found that the stage of upper primary is very significant stage of education. At this stage, students are very keen to learn new things and they can also easily adapt it, if it will provided by right resources of learning. At present time, we saw that teaching-learning system have limited only classroom and completely based on direct instructions, which directly affected students' learning growth. At this level, students knowledge is

limited only rote memorization rather than acquiring knowledge and comprehension learning. So, there are various observation about teaching-learning, it encourages and help researcher to choose this topic for study.

Co-operative-Gamified learning will emerge as a new discipline in the field of teaching-learning method. It will provide new method in which learners get engaged in learning and learn in joyful ways. As we all know that students in upper primary level are very eager to learn new things. If we teach students from traditional learning method, they don't take much interest or getting bored earlier. From the result of this learning knowledge doesn't keep in mind for a longer period. So, Students don't have any choice but to cramming the fact. The result of this learning comes out in the form of that students lose their interest in learning and move towards rote learning.

There are various drawbacks in traditional method like it is teacher-centered, learning remains within the four walls, more focus on spoon feeding etc. Having all these drawbacks researcher can surely be overcome by employing co-operative-gamified learning method of teaching which will completely child-centered method and also provide motivating learning environment to students. In this teacher will act as a guide and learning goes beyond the classroom as the practical application of learning in different situations with different exercises and give result in different effects. It will also help to increase child's memory by representation of images, students' will learn in creative environment and adapt the creative behaviour which will reflect on their personality and it also help to reduce the stress of students.

Although Educational games lead to the active participation of students, especially shy ones and this has a direct influence over the student's interest and attitude towards a course **(Cilem Ozturk and Ozgen Korkmaz, 2019 as cited in Bayat, Kılıcarslan & Senturk, 2014)**.

The integration of games into education can provide contextualized, problem-based and interactive learning activities allowing students to learn through entertainment. **(Limniou, Maria and Mansfield Rosie, 2018 as cited in Boyle, Connolly and Hainey 2011)**. This process called active participation that presents the opportunity for the students to express their ideas and feelings and increases their creativity **(Cilem Ozturk and Ozgen Korkmaz, 2019 as cited in Uberman, 1998.**

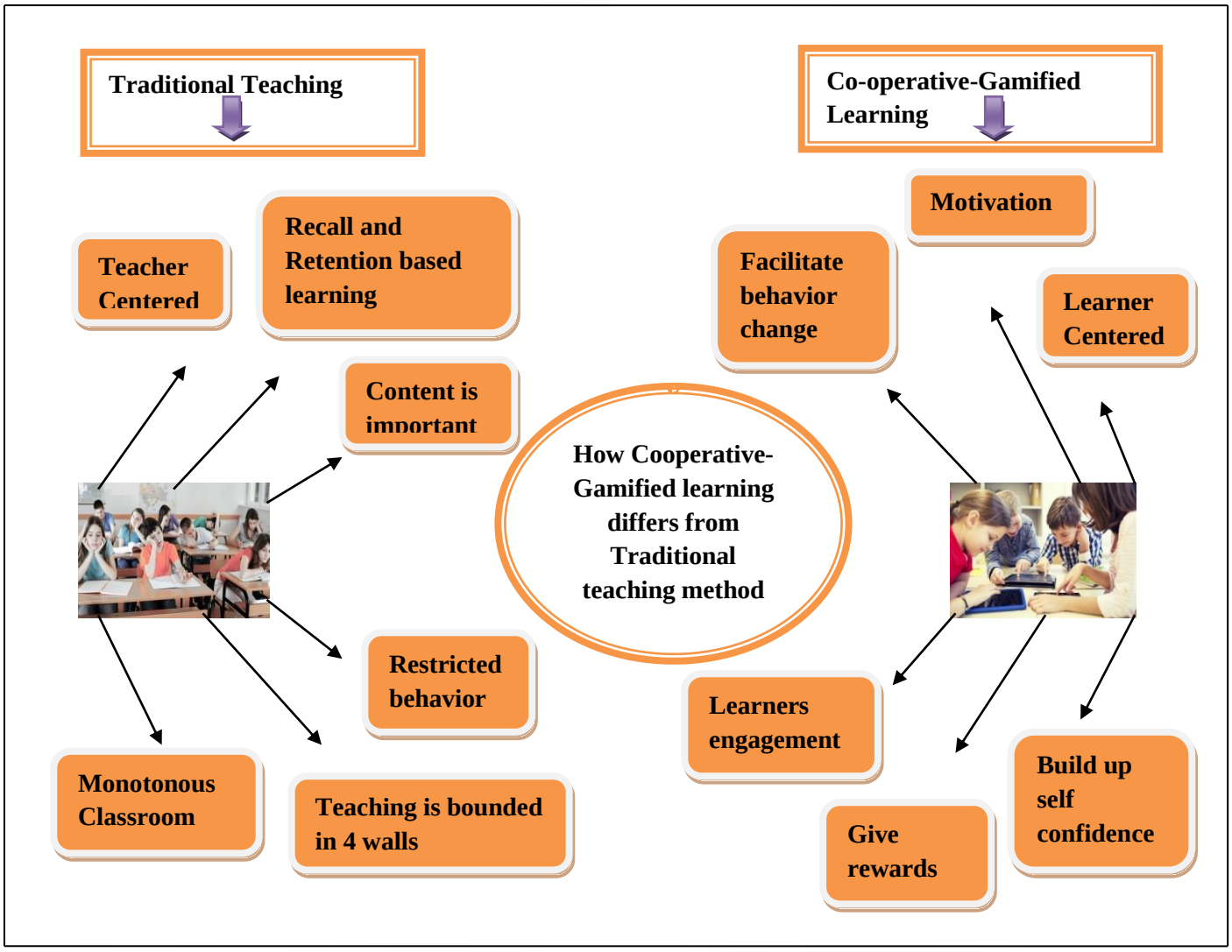

Fig. 5 Cooperative-Gamified learning is differs from Traditional learning

Co-operative-Gamified learning seems to be an aspiration for have some changes at the stage of upper primary level. To have a deep prudence about this method, the researcher has explored some studies and review related literature about the variables of the study, which are as follows:

1.2.1 Researches related with Co-operative-Gamified learning Gabriella Dodero, Rosella Gennari, Alessandra Melonio, Santina Torello April (2014), Bin Shyan Jong, Chien-Hung Lai, Yen-Teh Hsia, Tsong-Wuu Lin May (2013), Muhterem Dindar, Lei Ren, Hanna Jarvenoja June (2020), Rosella Gennari, Alessandra Melonio & Santina Torello May (2016), Niamboue Bado, Teresa Franklin (2014), Rodrigo Smiderle, Sandro José Rigo, Leonardo B. Marques, Jorge Arthur Peçanha de Miranda Coelho & Patricia A. Jaques January (2020), Ralai Andriamiarisoa (2018), Suhas Chandran**,** SN Prakrithi**,** M Kishor (2018), María Campillo-Ferrer, Pedro Miralles-Martínez and Raquel Sánchez-

Ibanez (2020) conducted an investigation into the field of co-operative-gamified learning with the variables given in the figure 6.

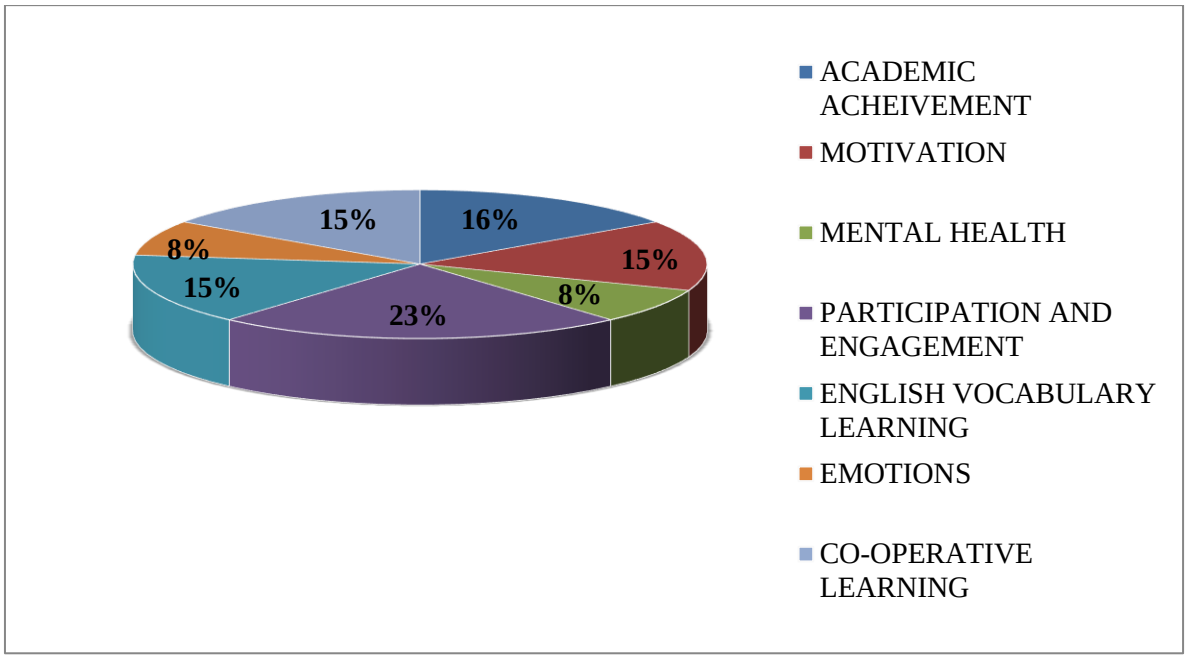

Fig.6 Researches of Co-operative-Gamified learning with different variables

There are various researches have been done on co-operative-gamified learning on different variables. Most of the researches has been done on academic acheivement and result obtained by the use of experiment and survey method. Different types of Games have conducted by teachers so students fully engaged in gamified environment and the positive impact has been seen in result. The results are not evenly positive in all researches as the research done by Muhterem Dindar, Lei Ren, Hanna Järvenoja June (2020) on English vocabulary learning revealed that no difference was observed between the conditions regarding task effort, learning achievement and motivation.

1.2.2 Researches related with Academic Anxiety

In the field of Academic anxiety various researches are done by Dr. Mohd Shakir (2014), Samit Kumar Das, Ujjwal Kumar Halder, Bapi Mishra (2014), Munni Kumari (2018), Atieq Ul Rehman (2016), Niti O. Khemka and Rajesh R. Rathod (2016), Ramana Rao B. V,Anjali Chaturvedi (2017), Sibnath Deb, Pooja Chatterjee & Kerryann Walsh (2010) with academic acheivement, parental encouragement , gender based, mental health and socio-emotional school climate.

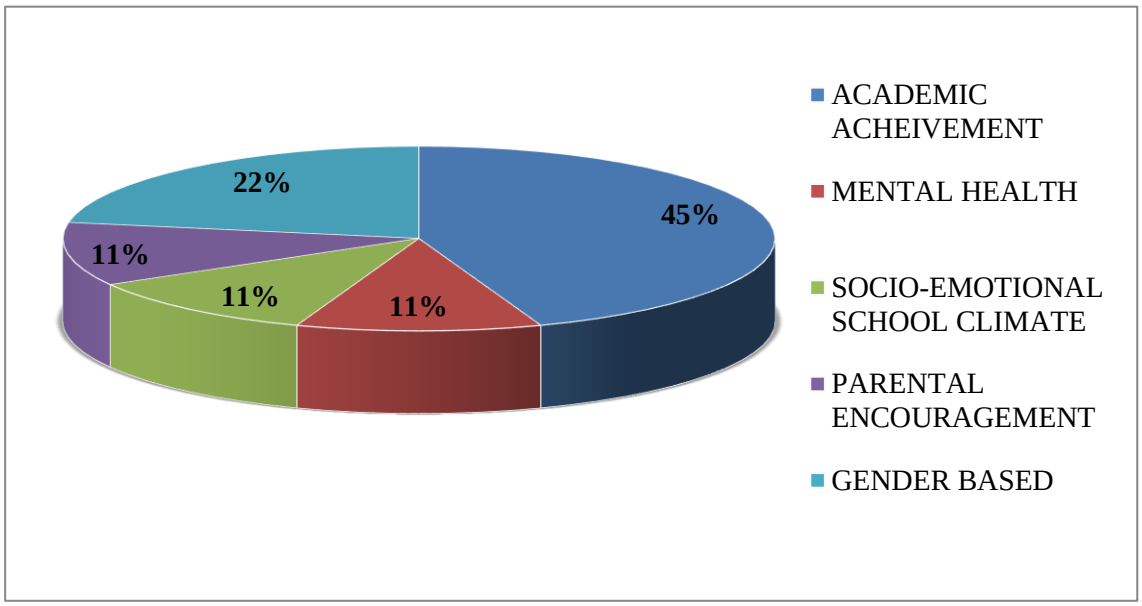

Fig.7 Researches of Academic Anxiety with different variables

There are various studies and researches have done on academic anxiety with different variables. In most of the researches quantitative method has used i.e. survey method, exploratory method and interview method. Academic anxiety lays more effect on academic acheivement of students on the basis of gender and urban and rural areas of learning environment as well as some other variables has also affected by it which has given above in the figure of 7.

1.2.3 Researches related with Creative behaviour

The researches have done in the field of creative behaviour with different variables. Most of the researches have done with divergent thinking and problem solving. It lays a positive effect on students' learning and their creative behaviour. Researches have investigated by Krishnan Bhatt, Anantha Ubharadka, Kiranbabu (2020), Angela Foreman (2014), Russell L. Ackoff , Elsa Vergera (2011), Fotis Kousoulas (2010) , Hsing-Yuan Liu, I-Teng Wang (2019), Chico Robert Terry, Robert M. Torres (2010), Zeynep Dere, Esra Omeroglu (2018) on different variables which has been shown in figure 8

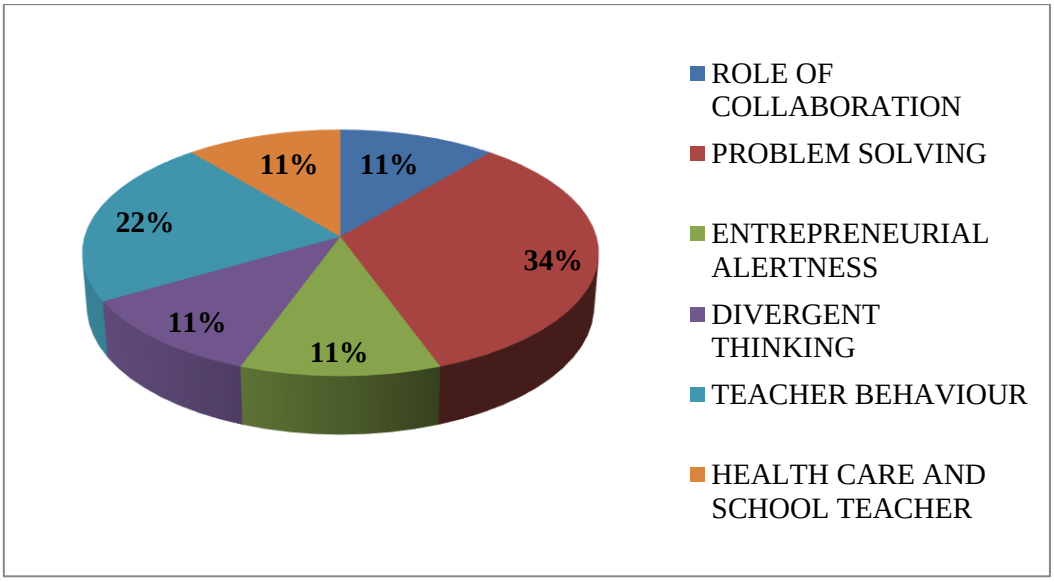

Fig. 8 Researches of creative behaviour with different variables

1.2.4 Researches related with Mental Imagery

Daesub Yoon, N. Hari Narayanan March (2004), Perez-Fabello, Maria Jose, Felieberti and Fatima Maria(2017), Simon E. Blackwell (2018), N.J.T Thomas (2009), Karen P. Y. Liu, Monica Lai, Shirley S. M. Fong, and Michelle Bissett (2019) investigated the field of mental imagery with the different variables. Researches have shown that mental imagery lies helpful effect on other variables as Rebecca Keogh, Joel Pearson (2011) about visual working memory revealed that more specifically good imagers might use imagery to solve the memory task and poor imagers on the other hand do not, or are not able to create visual images to a useful degree.

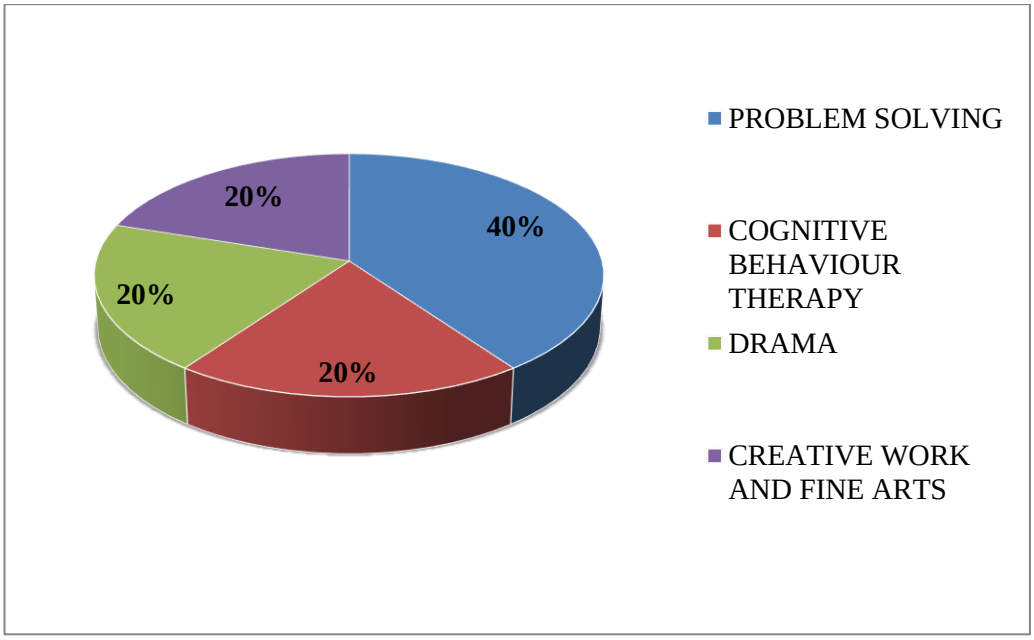

Fig. 9 Researches of Mental Imagery with different variables

The researches or studies indicates to the point that Cooperative-gamified learning in education helps to enhance understanding and interest of the students towards the subjects and also increase their self confidence and motivation level by using it. Various researches have done on this variable and different results or effects have shown which we discuss above.

The researcher after an intense study has not come up with any research using creative behaviour, mental imagery and academic anxiety with co-operative-gamified learning in all. Therefore, it is important to see that how much this study will prove to be helpful for students to learn in gamified environment rather than static one and also help to reduce stress of students towards learning. So the thorough study of these researches gives the glimpses of the present situation of the variable in the field of investigation. Neither such study has been found using co-operative-gamified learning with creative behaviour nor other single variable i.e. mental imagery and academic anxiety. Therefore, it is justified to paired two pedagogies as games are often seen, observed and implemented in groups and clusters.

These studies lead to the research questions to be studied in the Indian context. Which are-

1. Can English teaching of VII class be made joyful with the help of games implemented in cooperative groups ?

2. What are the effects of cooperative-gamified learning on students' creative behavior?

3. Does cooperative-gamified learning help to make mental imagery in students' mind?

4. Does cooperative-gamified learning reduce students' academic anxiety?

To find out the answers of these questions researcher is working forward in the regarding field of investigation.

1.3.0 STATEMENT OF THE PROBLEM

The research problem is stated as given below-:

"Effects of Cooperative-gamified learning on students' Creative Behaviour, Mental Imagery and Academic Anxiety at Upper Primary level".

1.4.0 DEFINITIONS OF THE TERMS OF THE STUDY

STANDARD DEFINITION

1.4.1 Gamified learning

According to Trybus (2015) "Gamified learning refers to the borrowing of certain gaming principles and applying them to real-life settings to engage users."

1.4.1Cooperative learning

According to Lin (2006) "An instructional method in which students works in small groups to accomplish a common learning goal under the guidance of a teacher."

OPERATIONAL DEFINITION

In this study**,** Cooperative-gamified learning refers as the learning techniques of Gamification will be combined with cooperative learning method in which games become a part of learning process in which learners work together in a small group to achieve a common goals which makes learning joyful and delightful. It occurs in a positive and joyful learning environment where learners face healthy competition among students. Learners also get intrinsically motivated which consequently helps to build self-confidence and its reflects directly in their learning. In co-operative-gamified learning researcher will organize digitalized and manual games like jig saw, scrabble, story-board, playing cards, communal story competition , crossword puzzle etc. so with the help of these games researcher will conduct experiment to achieve the end of the goal of the present research.

1.4.2 Creative Behaviour

STANDARD DEFINITION

According to Savi Setia (2018) Creative behaviour is defined as the tendency to generate or recognize ideas, alternatives or possibilities that may be useful in solving problems, communication with others and entertaining ourselves and others.

OPERATIONAL DEFINITION

In this study, creative behaviour refers to as that behaviour which directly reflects in students' personality in the form of better dealing of complexity of life, for efficient discourse and in other domains of life. Creative behaviour is the way through which students reveal their creative side by solving out their daily life problems and handling out situations related to teaching- learning effectively by engaging in cooperative-gamified learning.

1.4.3 Mental Imagery

STANDARD DEFINITION

According to Moran (2004): as an internal representation that gives rise to the experience of perception in the absence of appropriate sensory input.

OPERATIONAL DEFINITION

In this study, Mental Imagery or Mental Representation defines a mental picture which has been made with the experience of learning in learners' mind with resembling physical objects, creating visual images and sensory organs by incorporating with cooperative gamified learning.

1.4.4 Academic Anxiety

STANDARD DEFINITION

According to Thesin (2013): It is the feeling of being distressed, fearful or stressed out as a result of school pressures.

OPERATIONAL DEFINITION

In this study, Academic anxiety deals the pressure that students face in academic environment. It includes anxiety over tests, performance ability, time pressures and competition with their peers as well as fear of teachers and expectation of parents. In present study, researcher will try to remove the exam pressure or strain on school level children by giving them to scope of learning with gamification.

1.5.0 OBJECTIVES OF THE STUDY

The objectives of the present study are as follows:

1. To analyze the content of class VII English text book with reference to cooperative-gamified learning.

2. To develop instructional material for applying cooperative-gamified method in the classroom.

3. To implement the developed instructional material in the class.

4. To study the effect of Cooperative-gamified learning on creative behaviour of upper primary students.

5. To study the effect of Cooperative-gamified learning on Mental Imagery of upper primary students.

6. To study the effect of Cooperative-gamified learning on Academic Anxiety of upper primary students.

1.6.0 HYPOTHESES OF THE STUDY

In line with the objectives of the study, the following hypotheses are formulated-:

Ha_1: There will be a significant effect of Cooperative-gamified learning on creative behaviour of upper primary students.

Ha_2: There will be a significant effect of Cooperative-gamified learning on mental imagery of upper primary students.

Ha_3: There will be a significant effect of Cooperative-gamified learning on academic anxiety of upper primary students.

1.7.0 VARIABLES OF THE STUDY

In the present study there are two variables-:

The **Independent Variable** of the study are:

1. Cooperative-gamified learning

The **Dependent Variables** are:

1. Creative Behaviour

2. Mental Imagery

3. Academic Anxiety

The **Extraneous Variables** will be controlled by identification of effective variables and using effective strategy of controlling as:

1. Subject Relevant Variables: This includes age, grade, anxiety and motivation. They can be controlled by random sample selection.

2. Environmental Variables: The classroom climate, noise, light and condition of school act as the environmental variables which will be controlled by providing similar conditions.

3. Sequence Relevant Variables: Practice, fatigue and cooperation are included which will be controlled by the researcher.

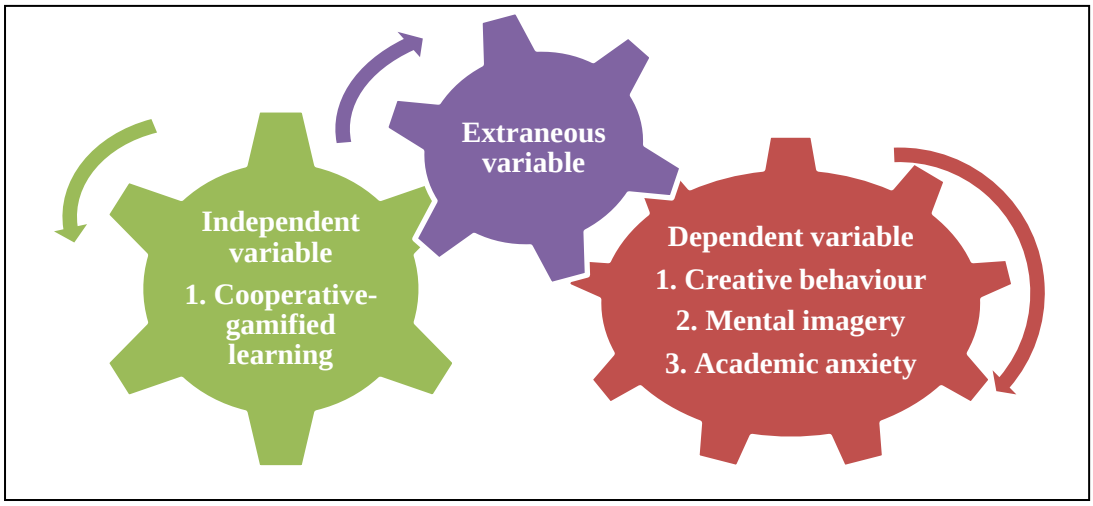

Fig. 10 Variables of the study

1.8.0 DELIMITATION OF THE STUDY

The study will be delimited in the following ways:

- The study will be delimited to Agra city only.
- The study will be delimited to CBSE school selected from Agra only.
- The study will be delimited to a sample of 80 students of upper primary level.
- The study will be delimited to upper primary class VII only.
- The study will be delimited to English subject only.

1.9.0 METHODOLOGY & RESEARCH DESIGN OF THE STUDY

In this study, to achieve the above mentioned objectives **, Quasi experimental method and two group non equivalent pre test and post test design** will be used to develop instructional material

based on gamified learning with cooperative learning techniques to know their effects on the creative behaviour, mental imagery and academic anxiety of students.

1.10.0 SAMPLE OF THE STUDY

Justification of sample selection-:

CBSE school of Agra will be selected for the study. 80 students from CBSE school of Agra will be selected by random sampling method.

Design of sample-: Design of sample will be used

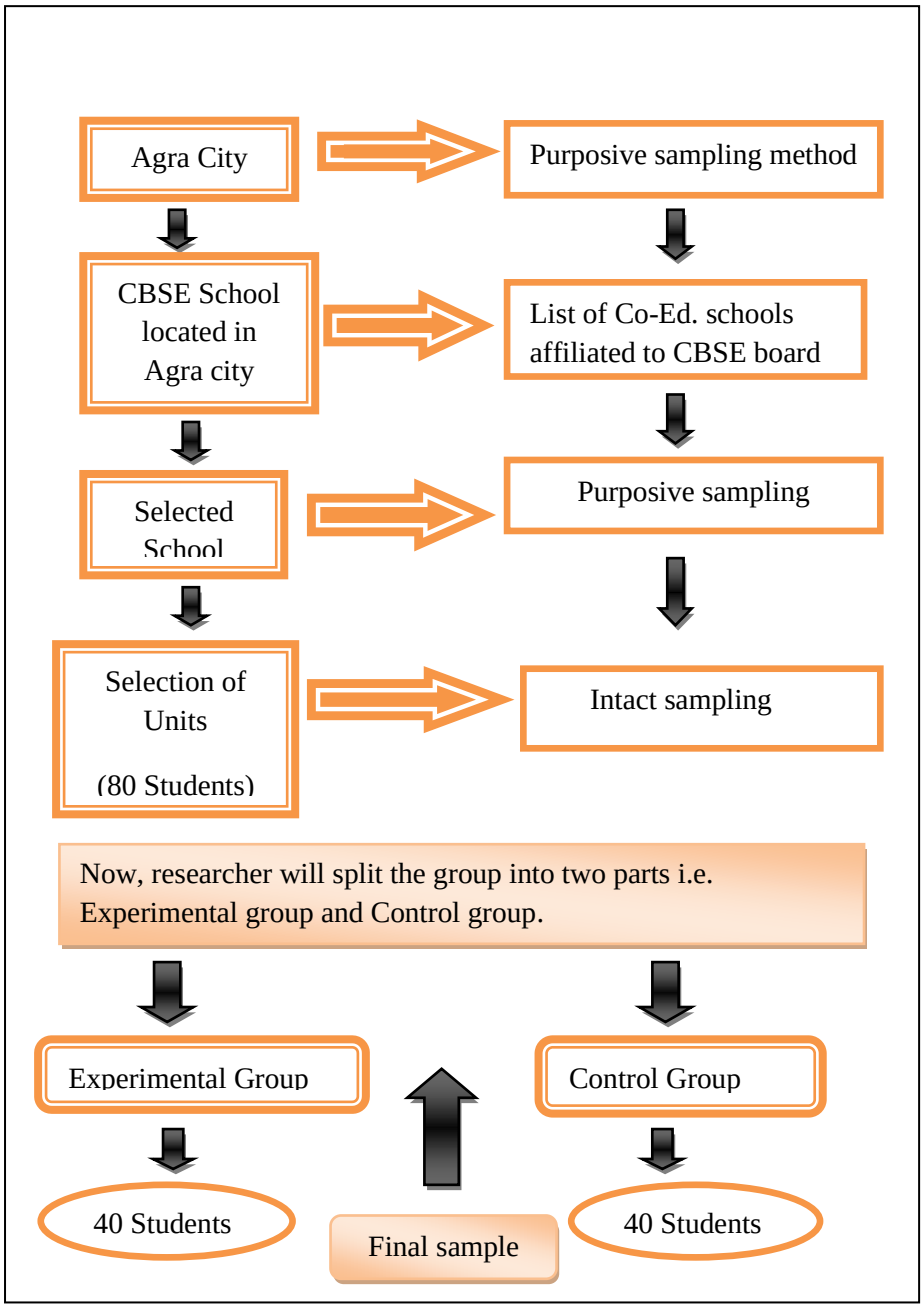

Fig.11 Sample of the study

1.11.0 RESEARCH DESIGN OF THE STUDY

Table.1 Research Design of the study

GROUPS	PRE-TREATMENT PHASE	IMPLEMENTATION PHASE	POST-TREATMENT PHASE
EXPERIMENTAL GROUP	In this phase, researcher will administer standardized tools of creative behaviour and mental imagery and self constructed tool of academic anxiety on experimental group.	20 different topics will be prepared and executive by 20 different gamified learning ways in 40 days.	In this phase researcher will be administered standardized tools of creative behaviour and mental imagery and self constructed tool of academic anxiety on experimental group.
CONTROL GROUP	In this phase, researcher will administer standardized tools of creative behaviour and mental imagery and self constructed tool of academic anxiety on control group.	This group will be taught by traditional method.	In this phase researcher will administer standardized tools of creative behaviour and mental imagery and self constructed tool of academic anxiety on control group.

1.12.0 TOOLS OF THE STUDY

Following standardized tools will be used in present study-

1. Creative behaviour : Creative behaviour questionnaire is developed by A.P. Singh and L.K. Mishra (2009).

2. Mental Imagery Questionnaire (M.I.Q) : Mental imagery questionnaire is developed by Rajamanickam (1995) designed to assess the sensory experiences of the individuals. This Questionnaire has six subsets referring to six areas of sensory experiences- (i) visual, (ii) auditory, (iii) olfactory, (iv) gustatory, (v) tactual, (vi) bodily. Thus, 15 x 6 = 90 items are included in Questionnaire. This test is sufficiently reliable and valid.

Following self-constructed tools will be used in present study-

1.Self constructed tool for assessing **Academic anxiety scale for upper primary level.**

1.13.0 STATISTICAL TECHNIQUES OF THE STUDY

To analyze and interpret the data obtained the researcher will be used the following statistical techniques-:

Descriptive Statistics:

Mean: Mean will be used as a measure of central tendency of the scores of all variables i.e. Cooperative-gamified learning, Creative behaviour, Mental Imagery and Academic Anxiety.

Standard Deviation: S.D will be used as a measure the dispersion of scores from the mean of all variables i.e. Cooperative-gamified learning , creative behaviour, Mental Imagery and Academic Anxiety.

Graphical Representation: It will be used for interpret numerical data by charts and graphs.

Skewness & Kurtosis: It is used to know the nature of data.

2. Inferential Statistics:

Ancova: Ancova will be used to compare the control and experimental group differences by controlling the covariate effect.

1.14.0 SIGNIFICANCE OF THE STUDY

Every research leaves its useful traces behind which proves its significance in every phase of life. Thus, the present study also vents its fruitfulness in the sphere of education, where new horizon of styles of learning will be tried to explore with cooperative-gamified learning with other dependent variables i.e. Creative Behaviour, Mental Imagery and Academic Anxiety. With the help of Cooperative-gamified learning researcher will make learning informative and exciting, it also helps to provide opportunities for learners to see the real world applications, Gamification helps to enhance the learning experience and interest in a particular subjects, it develops the feeling of integration and support of peers in social forums or gain guidance from experts to meet their goals. Cooperative-gamified learning is not limited to the hours between three to five but it also can be applied outside of the classroom. So, there are various benefits of cooperative-gamified learning by using it in classroom environment. Therefore, it will prove to be effective when researcher uses the new amalgamation of method in learning i.e. Gamified learning with Cooperative method of learning by seeing the effect on other variables i.e. Creative Behavior, Mental Imagery and Academic Anxiety.

REFERENCES

Ackoff, Vergara. R,E. (2011). Creativity in problem solving and planning: a review. *European journal of operational research. Vol. 7(1). 1-13*

Anxiety.(2012). In Merriam-Webster Dictionary online. Retrieved from http://www.merriam-webster.com/dictionary/anxiety.

Alqaryouti, M. (2000). Organizational behaviour: study of individual and group in different organizations, Vol. 3, Oman: Alshrouk house for publication and distributions.

Alzoubi, M. (2013). The degree of creative behaviour in classroom management among the teachers of king Abdullah II schools of excellence in the Hashemite kingdom of Jordon . *Mutah journal for research and studies- humanities and social sciences series, 28(3): 289-332*

Azeem, M. A. (2018). Study of Academic Anxiety and Academic Achievement Among Secondary School Students. *International Journal of Research in Social Sciences Vol. 8 Issue 3*

Bado, Franklin.N,T.(2014).Cooperative game-based learning in the english as a foreign language classroom. *Issues and Trends in Learning Technologies.Vol.2*

Bayat, S., Kılıcarslan, H., & Şentürk, Ş. (2014). Investigating the effect of educational games in science and tehnology course on the academic success of students at grade 7. *Abant İzzet Baysal University Faculty of Education Journal, 14(2), 204-216.*

Bhatt, Ubharadka, Babu. K.A.K. (2020). Creative behaviour and entrepreneurial alertness among Indian students. *The international journal of Indian psychology. Vol. 08, Issue 1*

Blackwell, S. E. (2018) Mental imagery: from basic research to clinical practice. *Journal of Psychotherapy Integration. Vol. 29(3).*

Cabra, F. (2011). Creative behaviour. Reterived from https://link.springer.com/referenceworkentry/10.1007%2F978-1-4614-3858-87

Chandran, Prakrithi, Kishor.S,S,N. (2018).Gamifying education and mental health. *journal of yenepoya (deemed to be) university. Vol.6 (pp. 284-289)*

Chang, J. (2020). Gamification in education statistics. Retrieved from **https://financesonline.com/gamification-statistics/**

Chen, Husnaini, Chen. S,S,J. (2020). Effects of games on students' emotions of learning science and achievement in chemistry. Retrieved from https://doi.org/10.1080/09500693.2020.1817607

Chetan, Shridhar, Devadula, Sadashiv.V,R,S,G.(2018).Gamification: the next evolution of education**.** *Research Gate. International Conference on Future of Education.* Retrieved from https://www.researchgate.net/publication/329384806

Das, Halder, Mishra.S,U,B.(2014). A Study on Academic Anxiety And Academic Achievement of Secondary Level School Students. *International multidisciplinary research paper*

Deb, Chatterjee, Walsh. S,P,K. (2010). Anxiety among high school students in India: Comparisons Across gender, school type, social strata and perceptions of quality time with parents. *Australian Journal of Educational & Developmental Psychology. Vol 10, 2010, pp18 – 31*

Dere, Omeroglu. Z, E.(2018). Development of creative behaviour observation form: A Study on validity and reliability. *Universal journal of educational research . Vol 6(3) : 562-570, 2018*

Dichev, Dicheva.C,D. (2017). Gamifying Education: What is known, what is believed and what remains uncertain: a critical review. *International journal of Educational Technology in Higher Education 14*

Dinder, Ren, Jarvenoja.L.H,M. (2020). Study on the effects of gamified cooperation and competition on English vocabulary learning. *journal of british journal of educational technology vol 52*

Dodero, Gennari, Melonio, Torello .G,R,A,S. (2014).Gamified Co-design with Cooperative Learning.

Fabello, Jose, Berti, Maria. P,M,F,F. (2017). The role of mental imagery in creative work by Fine Art students. Retrieved from https://eprints.kingston.ac.uk/id/eprint/40471/

Ferrer, Martinez, Ibanez. M,P,R. (2020). Gamification in Higher Education: Impact on Student Motivation and the Acquisition of Social and Civic Key Competencies. *Multidisciplinary Digital Publishing Institute. Sustainability 2020,* 12*(12), 4822; Retrieved from https://doi.org/10.3390/su12124822*

Foreman, A. (2014). A Micro-Ethnographic study of creative behaviour of title 1urban art students: how do context, collaboration and content play a role in the development of creativity?

Galton, F. (1880). Statistics of Mental Imagery. *Mind* (5) 301–318.

Gennari, Melonio, Torello.R,A,S.(2016). Gamified probes for cooperative learning: a case Study. *Springer open.Retrieved from* https://link.springer.com/article/10.1007/s11042-016-3543-7

Guarnera, Pellerone, Commodari, Velenti, Buccheri. M,M,E,G,S (2019).Mental Images and School Learning: A Longitudinal Study on Children. Retrieved from https://doi.org/10.3389/fpsyg.2019.02034

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work?—A Literature Review of Emperical Studies on Gamification. 47th Hawaii International Conference on System Science, 3025-3034 Retrieved from http://people.uta.fi/~kljuham/2014-hamari_et_al-does_gamification_work.pdf

Harrison, J. (2013). The effects of instructor transformational leadership and verbal immediacy on learner autonomy and creativity in online contexts.

Huberty, T. J. (2009). Test and Performance Anxiety. Principal Leadership,10(1),12-16.

Jerwan, F. (2012). Methods of detecting the talented and caring for them, i(3). Amman: Dar Alfkir

Jong,Lai, Hsia, Lin.B,C,Y,T.(2013).Using Game based cooperative learning to improve learning motivation: A study of online game use in an operating systems course.(pp. 183-190).*Research Gate*

Kaya,U.U.(2007). The effect of game techniques/approaches on the acheivement level in primary school grade 1.Unpublished masters thesis. Kocatape university,Afyonkarashiar.

Keogh,Pearson.R,J.(2011). Mental Imagery and Visual Working Memory. Retrieved from https://doi.org/10.1371/journal.pone.0029221

Khemka, Rathod. N,R. (2016). A Study of Academic Anxiety of Secondary School Students. *TechnoLEARN.Vol. 6: No. 1:(pp. 31-34)*

Kocakoyun, Ozdamli.S,F. (2016). A Review of Research on Gamification Approach in Education. *DOI: 10.5772/intechopen.74131*

Kousoulas, F. (2010). The interplay of creative behaviour, divergent thinking and knowledge base in students' creative expression during learning activity. *Creativity research journal. Vol.22(4): 387-396*

Kumari.M.(2018). A Study of Academic Anxiety in Relation to Mental Health in Adolescents *International Journal of Current Research and Review.VOL.10*

Lewis, B. (2019). What Is Cooperative Learning. Reterived from https://www.thoughtco.com/what-is-cooperative-learning-2081641

Limniou, Mansfield. M,R. (2018). Traditional learning approach versus Gamification: an example from Psychology. Retrieved from https://www.researchgate.net/publication/326503832

Liu, Lai, Shirley Fong, Bissett.K,M,S,M.(2019). Imagery Ability and Imagery Perspective Preference: A Study of Their Relationship and Age- and Gender-Related Changes. Retrieved from **https://www.hindawi.com/journals/bn/2019/7536957**

Liu, Wang. H,I.(2019). Creative teaching behaviours of health care school teachers in Taiwan: mediating and moderating effects. Retrieved from https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-019-1641-8

National Curriculum Framework Recommendations. (2005). Retrieved from NCF: https://ncert.nic.in/pdf/nc-framework/nf2005-english.pdf

Naser Abdallah , R. (2016). Level of creative behaviour among teachers of public schools within the green line from their perspective. *Journal of education and practice. Vol. 7*

National Education Policy. (2020). Retrieved from NEP: **https://niepid.nic.in/nep_2020.pdf**

Neelam (2013). Academic Achievement of Secondary School Students Having Differential Level of Academic Anxiety. *International Journal of Behavioral Social and Movement Sciences,2(2),117-123.*

Noruzy, Dalfard, Azhdari. A,M,B., et al., (2013). Relations between transformational leadership, organizational learning, knowledge management, organizational innovations and organizational performance: An empirical investigation of manufacturing firms. *International journals of advanced manufacturing technology. 64:1073-1085.*

Ozturk, Korkmaz. C,O. (2019). Effect of Gamification activities on students' academic achievements in social course, attitude towards the course and cooperative learning skills**.** *journal of participatory educational research vol 7(1).(pp. 1-15)* http://dx.doi.org/10.17275/per.20.1.7.1

Rao, Chaturvedi.R,A. (2018). Study the Academic Anxiety of Secondary School Students in Relation

to Gender and Locality. *International Journal of Research in Humanities, Arts and Literature.Vol.5.(pp. 59-62)*

Rehman, A. (2016). Academic Anxiety among Higher Education Students of India, Cause and Preventive Measures: An Exploratory Study. *International Journal of Modern Social Sciences, 5(2),102-116.*

Shakir, M.(2014).Academic Anxiety as a Correlate of Academic Achievement**.** *journal of Eduaction and practice.vol.5*

Singh,Hill.L.M. (2020) .Demystifying Gamification in Education: Bringing the focus back on learners. *elets.world education summit.* Reterived from *https://digitallearning.eletsonline.com*

Smiderle,Rigo,Jacques.R,S,P.(2020). The impact of gamification on students' learning, engagement and behavior based on their personality traits. *Springer open access journal.* Retrieved from https://slejournal.springeropen.com/articles/10.1186/s40561-019-0098-x

Soare. E. (2019). Reinforcing The Personalized Learning Experiences by the use of Game-Based Learning. Retrieved from https://www.researchgate.net/publication/335190693ReinforcingThe_Personalized_Learning_Experiences_By_The_Use_Of_Game-Based_Learning

Storlie,T.(2015). Person-Centered Communication: Mental Imagery and Imagined Interactions. Retrieved from **https://doi.org/10.1016/B978-0-12-420132-3.00008-8**

Terry, Torres. C, R. (2010). Creative and effective teaching behaviours of university instructors as perceived by students. *Journal of agricultural education. Vol. 51(3), pp 64-75*

Thomas, N.J.T. (2009). Visual Imagery and Consciousness. Retrieved from **https://www.sciencedirect.com/topics/psychology/mental-imagery**

Uberman, A. (1998). The use of games for vocabulary presentation and revision, Forum Online. 36(1), 20.

Blackwell, S. E. (2018). Mental imagery: from basic research to clinical practice. Journal of

Yoon, Narayanan. D, N. H. (2004**)**. Mental imagery in problem solving: an eye tracking study. Retrieved From **https://doi.org/10.1145/968363.968382**